REMARKS

Claims 1, 3, 4, 6, 7, 9 and 10 through 16 remain in this application.

Claim Rejections under 35 U.S.C. Section 103

Claims 1, 3, 4, 6, 7, 9 through 15 were rejected as being unpatentable under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6504630 to Czarnocha ("the Czarnocha reference") in view of U.S. Patent 5,995,256 to Fee ("the Fee reference") and U.S. Patent No. 6,599,039 to Nakazato ("the Nakazato reference") and U.S. Patent No. 5,995,256 to Arends (the Arrends reference). However, the references either alone or in combination do not disclose the elements of the claims.

Independent Claim 1 and dependent claim 3

With respect to claim 1, the cited references fail to disclose the requirements, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators."

As stated at page 2, last paragraph of the specification, existing safety shutdown systems are based on the detection of input loss of power, which is then used to shut down the optical output. The *specification of this application* points out a problem with these existing safety shutdown systems. The specification states at last paragraph at page 2 to first paragraph page 3:

> "While the use of While the use of input power loss detection for control of safety shutdown is acceptable in certain systems, this method is not sufficiently reliable in WDM systems which are more complex. Added complexities in WDM systems can create, excessive system noise, and/or low levels of signal to noise ratios, which will in turn prevent safety shutdown based on detection of input loss of power. An example of a system with a high level of noise and/or

low signal to noise ratio is a fiber optic transmission system which utilizes a Raman amplifier connected to the transmission fiber upstream of the receiver device to provide preamplification. Another example of a system with a high level of noise is one which uses bi-directional fiber operation. This type of system can have significant noise levels at the receiver due to high transmit power and Rayleigh back scatter in the transmission fiber. Even if these conditions do not cause an excessive noise level for preventing detection of a fiber cut or disconnect, when a fiber is broken, there is a significant possibility that the broken end will reflect a significant amount of the transmitted power, such that the receiver will see enough optical power that the receiver will not detect input loss of power, and therefore will not be able to activate the safety shutdown function."

Thus, the application explains a problem that the inventor identified was present in existing safety shutdown systems. The invention of this application solves the above-identified detection problems. The present invention is a more sophisticated loss detection method wherein circuitry is connected to the output of demodulators for sensing and detecting the presence of a received signal and for determining whether a predetermined number of received signals are present at the output of the demodulators. If a majority of received signal detectors are detecting the absence of its channel signal, the safety shutdown function is actuated. Since the data signals are detected at the output of the multiple demodulators, the present invention is a reliable control for safety shutdown that will not be inhibited by reception of noise power or other incorrect signals as in the existing safety shutdown systems described above.

As explained in more detail below, none of the prior art references cited by the Examiner discloses the present invention or describes or identifies the problem solved by the present invention. In fact, only the Czarnocha reference describes any type of safety shutdown function at all and it specifically describes the same existing safety shutdown system above of detecting a loss of signal power of the entire optical signal (traffic and supervisory signal), in a conventional manner, *at the input of downstream optical amplifier*. The Nakazato reference, the

Fee reference and the Arrends reference add no suggestion to modify the safety shutdown system in the Czarnocha reference as described in the present invention because these references nowhere identify or describe the problems with the existing safety shutdown system in the Czarnocha reference, and none of the references even describe any type of safety shutdown system. Without some type of suggestion in the references to modify a safety shutdown system or some suggestion of the problem identified in the present application, the Office Action is merely using improper hindsight to select individual elements disclosed in the references for other purposes and improperly combine them to reject the present invention.

> "The court must be ever alert not to read obviousness into an invention on the basis of the applicant's own statements; that is, we must view the prior art without reading into that art appellant's teachings." *Application of Nomiya*, 184 U.S.P.Q. 607, 612 (Cust. & Pat.App. 1975). The citation of the specification's own teachings to argue obviousness over prior art is improper. *In re Dembiczak*, 175 F.3d 994, 999, (criticizing hindsight syndrome wherein that which only the inventor taught is used against the teacher).

Each of the references is now discussed below to illustrate how none teach or suggest the present invention, either alone or in combination.

The Czarnocha reference

The Czarnocha reference fails to disclose or suggest the requirements of claim 1, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators."

In paragraph 3, page 2, the Office Action states that the Czarnocha reference discloses "a means for activating a shutdown input . . . of an optical amplifier . . . if the predetermined number of received valid signals is not detected . . ." and cites col. 5 lines 35 through 60 and column 10, lines 20 through 25. However, the Czarnocha reference does not disclose shutdown

based on whether a predetermined number of received valid data signals are detected at each demodulator for an output data channel. The Czarnocha reference states at column 5, lines 29 through 40:

> "According to the principles of the invention, a loss of signal in the information-bearing optical signals (referred hereinafter as "traffic signals") and loss of supervisory signal is detected (step 201 in Fig. 2), in a conventional manner, *at the input of downstream optical amplifier* 121 as a result of fiber cut 150 in optical fiber path 130."

It is clear from this description that the Czarnocha reference only detects a loss of signal power of the entire optical signal (traffic and supervisory signal), in a conventional manner, *at the input of downstream optical amplifier* prior to any demultiplexing of the individual traffic signals. As described at Column 3, lines 45 through 49:

> "Importantly, the automatic power shut-down procedure according to the principles of the invention is triggered by the detection of both the loss of signal power in the traffic channels (i.e., information –bearing optical signals) and the loss of supervisory signal power."

Thus, the Czarnocha reference describes detecting loss of signal power of the entire traffic signal at the input side of the optical amplifier or demultiplexer unit by detecting loss of power. This teaches away from the present invention of also separately demodulating the data signals and determining if a predetermined number of the demodulated data signals include correct data content to declare a loss of signal.

The Fee Reference

The Fee reference fails to add to the teachings of the Czarnocha reference to disclose or suggest the requirements of claim 1, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the

multiple demodulators." The Fee reference nowhere discloses using a loss of signal from a demodulator for shutdown of an optical amplifier or even determining if a predetermined number of multiple demodulators are receiving a valid signal or activating shutdown of an optical amplifier if a predetermined number of valid signals are not detected.

The Nakazato reference

The Nakazato reference also fails to add to the teachings of the Czarnocha reference to disclose or suggest the requirements of claim 1, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators." The Office Action cites column 27, lines 36 through 41 as disclosing whether a predetermined number of received valid signals are present. However, this citation is only describing measuring optical power of an optical signal in order to perform gain equalization of an optical amplifier. It is not even determining if a valid data signal is present in the optical signals. The Nakazato reference nowhere discloses using a loss of signal from a demodulator for shutdown of an optical amplifier or even determining if a predetermined number of multiple demodulators are receiving a valid signal or activating shutdown of an optical amplifier if a predetermined number of valid signals are not detected.

The Arends reference

The Arends reference also fails to add to the teachings of the Czarnocha reference to disclose or suggest the requirements of claim 1, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators." The Arends reference describes a single optical signal being transmitted and certainly does not even disclose multiple demodulators or receiving

multiple output data channels at multiple modulators or even an optical amplifier. It merely discloses sensing clock-loss indication and providing a disenabling pulse from a receiver to a transmitter until a phase lock loop can lock onto a system clock to prevent error prone data from being transmitted, as described at column 12, line 56 through column 13, line 6. The Arends reference nowhere discloses the problem identified by the present invention of a safety shutdown system or using a loss of signal from a demodulator for shutdown of an optical amplifier or even determining if a predetermined number of multiple demodulators are receiving a valid signal or activating shutdown of an optical amplifier if a predetermined number of valid signals are not detected.

As explained above, the combination of the Czarnocha reference, the Fee reference, the Nakazato reference and the Arends reference does not teach or suggest the requirements of the claims either. The Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner. This detection of loss of signal power in the Czarnocha reference has the disadvantages discussed at page 8, lines 21 through 25 that the reduction in received optical power may not fall below a detector threshold when an EDFA or Raman amplifier is used. The present invention realizes this problem and solves it by detecting whether a predetermined number of received valid data signals are output by a predetermined number of the multiple demodulators, as required by claim 1. None of the cited references even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention. Without some type of suggestion in the references to modify a safety shutdown system or some suggestion of the problem identified in the present application, the Office Action is merely using improper hindsight to select individual elements disclosed in the references for other purposes and improperly combine them to reject the present invention.

Independent Claim 4

With respect to claim 4, the Czarnocha reference, the Fee reference, the Nakazato reference and the Arends reference fail to disclose the requirements, *inter alia*, of, "said multiple wavelength receivers including multiple channel receivers for providing data signals to terminal devices, each of said channel receivers including a demodulator to detect and recover a valid received data signal at a correct data rate, and for generating an output signal." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data rate is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference and the Arends reference does not meet the requirements of the claims, because none of the references realize or address the problem of the present invention or teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 6

With respect to claim 6, the Czarnocha reference, the Fee reference, the Nakazato reference and the Arends reference fail to disclose the requirements, *inter alia*, of, "said multiple wavelength receivers including multiple channel receivers for providing data signals to terminal devices, each of said channel receivers including a demodulator to detect and recover a valid received data signal with correct coding, and for generating an output signal." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data coding is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference and the Arends reference does not meet the requirements of the claims, because none of the references realize or address the

problem of the present invention or teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 7 and dependent claim 9

With respect to claim 7, the Czarnocha reference, the Fee reference, the Nakazato reference and the Arends reference fail to disclose the requirements, *inter alia*, of, "sensing at the demodulator the presence of a valid data signal having a correct data format; and detecting whether a predetermined number of valid data signals are present at the demodulators." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data format is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference and the Arends reference does not meet the requirements of the claims, because none of the references realize or address the problem of the present invention or teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 10 and dependent claims 11 through 16

With respect to claim 10, the Czarnocha reference, the Fee reference, the Nakazato reference, and the Arends reference fail to disclose the requirements, *inter alia*, of, "a plurality of receive wavelength adapters that each receive one of the multiple wavelengths outputted from the demultiplexer, wherein each of the plurality of receive wavelength adapters monitors a data signal of their inputted wavelength and outputs a loss of signal in response to invalid data content." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data content is present at the

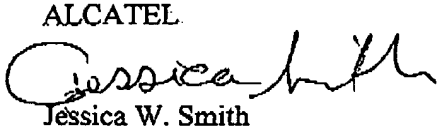
output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference and the Arends reference does not meet the requirements of the claims, because none of the references realize or address the problem of the present invention or teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the amendment to the claims be entered and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

ALCATEL



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